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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,548	06/08/2006	Ray Won	100325.0207US	1494

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EXAMINER	
WU, IVES J	

ART UNIT	PAPER NUMBER
1797	

MAIL DATE	DELIVERY MODE
08/03/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/563,548	WON, RAY	
	Examiner	Art Unit	
	IVES WU	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15-20* is/are allowed.

6)☒ Claim(s) *1-9 and 11-14* is/are rejected.

7)☒ Claim(s) *10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

(1). **Claims 1-7,9** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In **claim 1,** it recites: at a location downstream of an equilibrium stage where the feed gas enters the absorber, and wherein the recycle gas is produced from the rich solvent. the limitation of the location "downstream of an equilibrium stage where the feed gas enters the absorber", it is unclear where the exact location is because the absorber system is running at equilibrium condition, the phase equilibrium is established within the whole system, not in a certain areas in the absorber. Even if it is interpreted as discrete, separate stages such as trays, plates in the absorber, there are more than one downstream equilibrium stages where the feed gas enters the absorber. Therefore, it is rejected.

Claims 2-7 are rejected because of their dependence.

Claim 9 recites the limitation "wherein acid gas" in claim 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

(2). **Claims 12-14** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In **claim 12**, it recites: at least one of the flash vessel further produces an atmospheric flash gas. However, in the Figure 1 of Applicant's Specification, the flash vessel producing the atmospheric flash gas is 142 which is not one of the flash vessels which produce recycle gas to the absorber as recited in claim 8, therefore, it raise new matter.

Claims 13-14 are rejected due to their subordination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(3). **Claims 1-3, 6** are rejected under 35 U.S.C. 102(b) as being anticipated by Gaskin (US 2004003717A1).

As to a gas treatment plant comprising an absorber in which acid gas is removed from a feed gas using a physical solvent to thereby produce a rich solvent wherein the rich solvent is contact with a recycle gas at a location downstream of an equilibrium stage where the feed gas enters the absorber and wherein the recycle gas is produced from the rich solvent in **independent claim 1**, Gaskin (US 20040003717A1) discloses use of product gas recycle in processing gases containing light components with physical solvents (Title). as shown in the Figure below, it illustrates the extractor 2, lean solvent line 2, recycle gas line 22, feed gas line 1 and rich solvent line 4, flash separator 5.According to the embodiment depicted in Fig. 3, a portion of the product stream 8 is diverted via split 20 and recycled to extractor 3 as stream 22. Stream 22 typically enters the extractor at a point equal to or below the feed stream 1 ([0024], line 17-19).

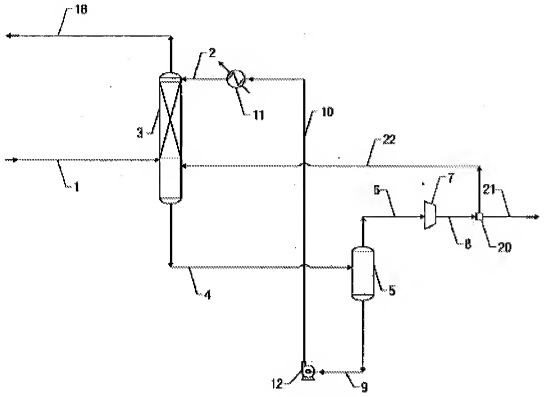

FIG. 3

As to feed gas comprising natural gas at a pressure of at least 2000 psig and wherein the acid gas is at least one of hydrogen sulfide and carbon dioxide in **claim 2**, Gaskin (US 20040003717A1) discloses natural gas ([0022]). The material worked upon does not limit the apparatus claim. MPEP §§ 2155.

As to recycle gas being produced from flashed gases of a plurality of serially coupled flashed vessels wherein the recycle gas is compressed to absorber pressure in **claim 3**, Gaskin (US 20040003717A1) discloses one solution to this contamination having been to subject the enriched solvent to multiple flash stages and to recycle a portion of the gas released from one or more of early flash stages back to the extractor with additional compressors to be included in the process ([0017], line 6-18). It would compress the recycle gas to the pressure of absorber in order to flow into the absorber.

As to rich solvent being contacted with the recycle gas in the bottom portion of the absorber in **claim 6**, Gaskin (US 20040003717A1) discloses stream 22 typically entering the

extractor at a point equal to or below the feed stream 1 ([0024], line 17-19) which includes the bottom of the absorber.

(4). **Claims 8, 9, 11** are rejected under 35 U.S.C. 102(e) as being anticipated by Mak (US 7424808B2).

As to a gas treatment plant comprising a contact vessel in which a rich solvent that is formed in an absorber contacts a recycle gas, wherein the recycle gas is produced from the rich solvent, and wherein the absorber receives a feed gas from which an acid gas is removed using a physical solvent, thereby producing the rich solvent in **independent claim 8**, Mak (US 7424808B2) discloses configurations and methods of acid gas removal (Title). As shown in the following Figure 2, it illustrates absorber 105, flash stages 110, 112, 114, separator 116 and vacuum separator 118, rich solvent 16, lean solvent 35. recycle gas 8, feed gas 1, which reads on limitations as claimed.

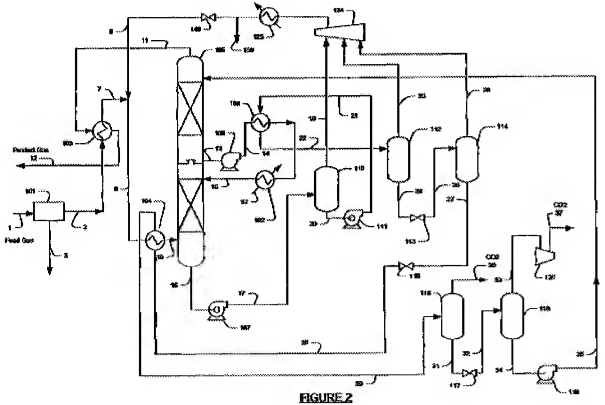

FIGURE 2

As to feed gas comprising natural gas at a pressure of at least 2000 psig and wherein the acid gas is at least one of hydrogen sulfide and carbon dioxide in **claim 9**, Mak (US 7424808B2) discloses natural gas (Col. 4, line 19). The absorber receives a feed gas at a pressure of at least 400 psig with at least 5 mol% carbon dioxide (Col. 3, line 51-53).

As to rich solvent being flashed downstream of the contact vessel in a plurality of sequentially coupled flash vessels wherein each of the flash vessels produces a portion of the recycle gas in **claim 11**, as shown in the Figure above, three flash stages 110, 112, 114 and flashed gas 19,23 and 26 which reads on limitations a s claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(5). **Claims 4, 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaskin (US 20040003717A1) in view of Mak (US 7424808B2).

As to rich solvent being flashed in a flash vessel to produce an atmospheric flashed rich solvent that is fed into a vacuum stripper to produce lean solvent in **claim 4**, at least one of flashed vessels producing a flashed rich solvent that is fed into a regenerator to produce a lean solvent for the absorber wherein at least one of the flashed vessel further produces an atmospheric flash gas in **claim 12**, Gaskin **does not teach** the flash vessel producing atmospheric flashed gas with vacuum stripper (regenerator) as claimed.

However, Mak (US 7424808B2) **teaches** configurations and methods of acid gas removal (Title). as shown in the Figure 2 of Mak above, the atmospheric separator 116 and vacuum stripper 118 which reads on the limitations as claimed.

The advantage of vacuum stripper is to separate lean solvent further from acid gas (carbon dioxide) (Col. 10, line 57-60).

Therefore, it would have been obvious at time of the invention to install the atmospheric separator, vacuum stripper of Mak in line with the flash vessels of Gaskin in order to achieve the advantages cited herein above.

Allowable Subject Matter

(6). **Claims 5,7,13** and **14** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the static mixer outside the absorber for mixing the recycle gas and rich solvent from the absorber; The vacuum striper with two separate stripping gases, one is sweet gas, another one is the flashed gas from a flash vessel connected with vacuum stripper overcomes the prior arts cited above.

Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the contact vessel comprising static mixer overcomes the prior arts cited above.

Claims 15-20 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The vacuum striper with two separate stripping gases, one is sweet gas, another one is the flashed gas from a flash vessel connected with vacuum stripper overcomes the prior arts cited above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IVES WU whose telephone number is (571)272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Ives Wu
Art Unit: 1797
Date: July 31, 2009

/Frank M. Lawrence/
Primary Examiner, Art Unit 1797